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ABSTRACT

The Iowa State Plan for Vocational Education received conditional approval pending a new needs assessment that would be deemed responsive to Section 116 of the Perkins Act, which mandates needs assessment of vocational-technical (VT) programs. The U.S. Department of Education prepared instruments assessing the degree to which Iowa's VT programs incorporate 12 fundamental criteria (each of which encompassed between 4 and 55 indicators) derived from the Perkins Act. The instruments were sent to all education agencies in Iowa eligible to receive Perkins Act funds. Responses were received from 350 school districts, 14 community colleges, and 1 area educational agency. A ranking technique that established a priority order for the 12 criteria was developed and used to analyze the responses. A generally high degree of agreement between the original qualitative and new quantitative assessments was found. Linkage between secondary and postsecondary institutions emerged as the highest priority need in both needs assessments. Increased integration of academic and vocational education, which was cited as a priority need in the original assessment, was included in the new assessment as an indicator only under the criterion "integration of academic and vocational education and service to special populations." (A ranked list of the 12 criteria is included.) (MN)

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A QUANTITATIVE ASSESSMENT OF NEEDS IN VOCATIONAL-TECHNICAL EDUCATION IN IOWA

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EXECUTIVE SUMMARY

The Iowa State Plan for Vocational Education received a conditional approval from the Office of Vocational and Adult Education, U.S. Department of Education. The condition was that the Iowa Department of Education conduct a new needs assessment of vocational-technical education. The assessment that had been conducted to prepare the plan was found to be unresponsive to Sec. 116 of the Carl Perkins Vocational and Applied Technology Education Act, which mandates the needs assessment.

This report presents the results of the new needs assessment and compares the results of this new assessment to those of the original assessment.

To conduct the new assessment, the Department of Education prepared instruments to assess the degree to which vocational-technical programs offered in Iowa incorporate 12 main criteria derived from the Perkins Act. Each of the 12 criteria had several indicators and respondents reported the frequency with which each indicator was incorporated into programs offered by the recipients. These instruments were sent to all education agencies in the state eligible to receive funds from the Perkins Act. Responses were received from 365 eligible recipients: 350 school districts, 14 community colleges, and 1 Area Educational Agency.

To analyze the responses received from the eligible recipients, it was necessary to develop a technique that established a priority order for the 12 criteria. *To do this a high need indicator was defined as one that was rarely incorporated (25 percent of time or less) in a majority (50 percent or more) of programs offered at the secondary and postsecondary levels.* Because there were different number of indicators for the 12 criteria (ranging from 4 to 55), it was necessary to determine the priority of the criteria in a way that was not dependent of the number of indicators.

Ranking techniques were used to determine the priority of the criteria. First, the number of indicators that met the definition of high need was determined. The ratio of the number of high need indicators to the total number of indicators for a criterion was calculated. The closer that ratio came to 1.0, the higher the priority of the criterion. Second, the average percentage of programs rarely incorporating the high need indicators was established for each of the criteria. These average percentages were also ranked. Third, the two ranks were added yielding a sum that indicated the priority of the criteria: the lower the sum, the higher the priority.

Using this procedure, the criterion that emerged as highest priority was Linkage between Secondary and Postsecondary Institutions. This criterion had 9 indicators and all of them met the definition of high need. This yielded a rank of 1 for the ratios of high need indicators. The average percentage of programs that were reported as rarely incorporating the Linkage indicators ranked second of all the criteria. The sum of these two ranks, 3, was the lowest for all the criteria, indicating this was the highest priority criterion.

The other 11 criteria were ranked in the priority order listed below. The number in parentheses is the sum of the ranks that was used to determine the priority of the criterion:

Student Work Skill Attainment (Sum of ranks 7)

Ability of Vocational Program to Meet the Needs of the Work Force (Sum of ranks 8)

Sequencing of Courses Leading to the Attainment of Both Academic and Vocational Competencies (Sum of ranks 9)

Job Placement (Sum of ranks 10)

Integration of Academic and Vocational Education (Sum of ranks 10)

Ability of the Eligible Recipients to Meet the Needs of Special Populations with Respect to Vocational Education (Sum of ranks 12)

Relevance of Programs to the Workplace/Occupations for which Students Are to be Trained and Extent to Which Such Programs Reflect a Realistic Assessment of Current and Future Labor Market Needs (Including Needs in Areas of Emerging Technologies) (Sum of ranks 14)

Vocational and Guidance Counseling (Sum of ranks 16)

Instruction and Experience, to the Extent Practicable, in All Aspects of the Industry the Students are Preparing to Enter (Sum of ranks 21)

Raising the Quality of Vocation Education Programs in Schools with High Concentrations of Low Income and Low Achieving Students (Sum of ranks 22)

Basic and Higher Order Current and Future Workplace Competencies That Will Reflect The Hiring Needs of Employers (Sum of ranks 23)

The original needs assessment did not attempt to develop a priority order for the needs it identified, but substantively there is considerable agreement between the implications of the two reports. The original report indicated that coordination among districts and articulation (linkage) with postsecondary institutions would be essential to implementing the provisions of Senate File 449. The original assessment also addressed the needs for increased integration of academic and vocational education, implementation of competency-based instruction and inservice for instructors on techniques for bring these changes about. Sections from the original report that are relevant to the 12 main criteria are quoted in this report.

INTRODUCTION

This is the report of a quantitative needs assessment of vocational-technical education in Iowa. This assessment was conducted by the Department of Education to comply with the requirements set on the conditional approval of the Iowa State Plan for Vocational Education by the Office of Vocational and Adult Education (OVAE), U.S. Department of Eduction.

The needs assessment originally submitted as part of the Iowa State Plan had been conducted for the Department of Education by the Center on Education and Training for Employment (CETE), The Ohio State University. This had been a qualitative study relying on site visits, classroom observations, personal interviews, and public meetings at selected sites in Iowa[1].

This original assessment was found to be inadequate by OVAE, and Iowa was required to conduct a new assessment using quantitative methods with a larger sample. CETE assisted in the conduct of this new assessment by reviewing the data collection instruments, conducting the statistical analyses of the data, and preparing this report. Staff in the Iowa Department of Education designed the instruments, conducted the data collection, and prepared the data for analysis.

This report describes the method used to conduct the quantitative needs assessment, presents the major need areas identified by the study, and relates the findings of this study to the earlier qualitative study. Additional computer analyses were conducted on the data but are not discussed in this report. These analyses have been provided to the Department of Education for further use as needed.

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[1]Lewis, M.V.; Grossman, G. M.; Norton, R.E.; and Pritz, S.G. *Assessment of Needs in Vocational-Technical Education in Iowa.* Columbus, OH: Center on Education and Training for Employment, The Ohio State University, 1991.

METHOD

Separate data collection instruments were prepared for secondary and postsecondary vocational education and sent to all eligible recipients of federal vocational education funds, including Area Educational Agencies. The instruments were mailed on January 30, 1992 with a return date of February 28, 1992. Responses from 365 eligible recipients were used in the analysis presented in this report. This total consisted of responses from--

- 350 Public School Districts, reporting on 2875 programs, an average of 8 programs per district,
- 14 Community Colleges, reporting on 564 programs, an average of 40 per college,
- 1 Area Educational Agency, reporting on 26 programs. (Because of the atypical nature of this agency, its results are not discussed in this report.)

The data collection instruments were designed to incorporate the criteria for the state assessment set forth in Sec. 116 of the Carl Perkins Vocational and Applied Technology Education Act (P.L. 101-392). The 12 criteria used in the instruments are listed below. Under each of these criteria, indicators (questionnaire items) were developed to assess the frequency with which programs incorporate specific practices related to the criteria. The number of indicators developed for each criterion is indicated in parentheses.

I. Integration of Academic and Vocational Education (9 indicators).

II. Sequencing of Courses Leading to the Attainment of Both Academic and Vocational Competencies (13 indicators).

III. Student Work Skill Attainment (6 indicators).

IV. Vocational and Guidance Counseling (11 indicators).

V. Job Placement (12 indicators).

VI. Linkage Between Secondary and Postsecondary Institutions (9 indicators).

VII. Instruction and Experience, to the Extent Practicable, in All Aspects of the Industry the Students are Preparing to Enter (18 indicators).

VIII. Ability of the Eligible Recipients to Meet the Needs of Special Populations with Respect to Vocational Education (55 indicators)[2].

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[2]The large number of items for this criterion are due to the listing of the special populations designated in the legislation for seven of the practices related to the criterion. Seven population groups are listed seven times yielding 49 separate criteria indicators.

IX. Raising the Quality of Vocation Education Programs in Schools with High Concentrations of Low Income and Low Achieving Students (4 indicators).

X. Relevance of Programs to the Workplace/Occupations for Which Students Are to be Trained and Extent to Which Such Programs Reflect a Realistic Assessment of Current and Future Labor Market Needs (Including Needs in Areas of Emerging Technologies) (17 indicators).

XI. Ability of Vocational Program to Meet the Needs of the Work Force (19 indicators).

XII. Basic and Higher Order Current and Future Workplace Competencies That Will Reflect The Hiring Needs of Employers (22 indicators).

There are 195 criteria indicators in the secondary instrument and 188 in the postsecondary. Seven indicators referring to the provision of information about vocational education prior to the ninth grade are not included in the postsecondary form.

Representatives of eligible recipients were instructed to complete needs assessment instruments for each of the programs offered within the seven vocational service areas. The instrument was completed by rating the percentage of time programs reflect the criteria indicators. The frequency responses were defined as "Usually" (100 to 75% of time), "Sometimes" (74 to 26% of time), and "Rarely" (25 to 0% of time).

Some eligible recipients offered more than one program within a service area. For example, within the business/office service area, a school district might offer business/office programs and accounting programs at several locations. The designated respondents for that district would then complete separate needs assessment instruments for each program in the service area. The responses to each separate instrument would indicate the frequency with which the separate programs incorporate the criteria indicators listed. The designated respondents would, of course, also complete instruments for programs offered in other service area.

The number of needs assessment instruments returned by districts was as follows:

Number of Instruments	Number of Districts
1	7
2	11
3	76
4	206
5	31
6	11
7+	8

Four instruments were, by a wide margin, the most frequent number returned. This was typically one instrument each for the service areas of agriculture, business, home economics, and industrial. The actual number of separate instruments returned by school districts was 1,371. Each of these instruments had, on the average, information for two programs reported, thus yielding information on 2,875 secondary programs.

At the postsecondary level, there are, of course, far fewer eligible recipients, 14 total, but community colleges offer more programs than the average school district. The colleges returned a total of 113 instruments reporting on 564 programs, an average of 5 programs per instrument.

The program, not the school district or the community college, was the unit of analysis used for this report. The information collected concerned the frequency with which various criteria indicators were reflected in these programs. Hence the analysis focused on the program.

Analysis

As indicated above, there were differing numbers of indicators for the 12 main criteria. This complicated the analysis because any procedure that simply aggregated the separate items would be influenced by the number of items. Criterion VIII, relating to support services for special population, for example, has over one-fourth of the total number of indicators. Consequently, an approach was necessary that controlled for the number of indicators under each criterion.

The analysis proceeded as follows:

1. The rated frequency with which each of the criteria indicators is present in the programs was calculated separately for secondary and postsecondary programs[3].

2. *A high need was defined as an indicator that was reported as present 25 percent of the time or less in 50 percent or more of the programs offered at both the secondary and postsecondary levels.* Stated in the reverse: a desirable practice was reported as *not* present 75 percent of the time or more in half or more of the programs.

3. The number of criteria indicators that met the definition of high need presented above were identified for each criterion and the ratio calculated of the high need indicators to the total number of indicators for each criterion.

4. The ratios resulting from step 3 were ranked from the highest to the lowest, with the highest ratio receiving a rank of 1.

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[3]The frequency with which the criteria indicators are present was also analyzed by vocational service area. The service area analyses are not discussed in this report but were presented to the Department of Education.

5. The average percentage of the high need criteria indicator were calculated. These percentages reflect the percent of programs that incorporate these indicators 25 percent of time or less.

6. The percentage resulting from step 5 were ranked from highest to lowest, with the highest percentage receiving a rank of 1.

7. The ranks resulting from steps 4 and 6 were added yielding a sum that indicates the extent to which the major criteria are being incorporated in programs. The higher the rank the greater the need.

FINDINGS

Of the 195 criteria indicators in the secondary instrument, 81 (42 percent) met the definition of high need presented above. Table 1 presents the number of these indicator by major criteria, the average percentage of these indicators and the ranks calculated as described above. The higher the rank, the less the criteria are being incorporated in programs. The sum of ranks indicates the overall priority of the need.

The analysis procedure used for this report identified Criterion VI, Linkage between Secondary and Postsecondary Educational Institutions, as the criterion least reflected in programs in Iowa. Criterion III, Student Work Skill Attainment ranked second, Criterion XI was third and so on through Criterion XII, which ranked lowest. Keep in mind that ranking lowest in this analysis is positive. A low ranking means that a criterion is currently being incorporated in programs. A needs analysis is intended to identify those criteria that are *not* being incorporated.

The criteria indicators defined as high need are discussed in the general priority order indicated in table 1. Related criteria that clustered in the rankings are discussed together. The box that introduces the discussion of each major criterion presents the indicators that were reported to be incorporated into programs 25 percent of time or less. We report the percentage of programs that incorporate these indicators 25 percent of the time or less divided into secondary and postsecondary programs.

The qualitative needs assessment that our Center conducted for Iowa identified the emphasis to be placed on vocational education at the secondary level as a key policy issue. We found support for strengthening secondary programs as well as those who felt specific skill training should be delayed until the postsecondary level. Because of the interest in this issue, we present the criteria indicators that reflect high need divided into secondary and postsecondary programs. The findings from the qualitative needs assessment are presented for those criteria where they have relevance to the findings of the quantitative results.

TABLE I

HIGH NEED CRITERIA INDICATORS

Criteria	Indicators Number[a]	Rank	Percent[b]	Average Rank	Sum of Ranks
I. Integration	3/9	9	69	1	10
II. Sequencing	5/13	6	66	3.5	9
III. Skill attainment	3/6	4	66	3.5	7
IV. Counseling	4/11	7	56	9	16
V. Job Placement	11/12	2	58	8	10
VI. Linkage	9/9	1	68	2	3
VII. Aspects of industry	2/18	11	54	10	21
VIII. Special populations	24/55	5	62	7	12
IX. Low income, low achieving	1/4	10	51	12	22
X. Program relevance	6/17	8	63	6	14
XI. Needs of workforce	11/19	3	65	5	8
XII. Basic and higher order competencies	2/22	12	52	11	23

[a] Number of criteria indicators meeting high need definition over total indicators for this criterion.

[b] Average percentage of high need criteria indicators, reflecting percentage of programs that incorporate the indicators 25 percent of time or less.

VI. Linkages Between Secondary and Postsecondary Educational Institutions

	Secondary%	Postsecondary%
A. Articulation agreements which result in advanced placement or standing have been established between the secondary and postsecondary institutions.	72[a]	75
B. Tech-prep programs which lead to specific two-year associate degrees have been established between secondary and postsecondary institutions.	84	99
C. Support services are provided to special population students assisting in the transition to postsecondary vocational education programs.		
1) disadvantaged (does not include individuals with learning disabilities)		
a. academically disadvantaged (includes potential dropouts and dropouts)	61	48
b. economically disadvantaged (includes foster children and JTPA)	62	59
c. limited English proficient (including migrant)	75	76
2) disabled (includes IEP, IVP, and vocational rehabilitation students, etc.)	63	50
3) non-traditional (gender)	66	61
4) displaced homemakers, single/teen parents, and single pregnant women	68	63
5) offender	70	85

[a]Percentage of programs where this indicator is incorporated 25% of time or less.

Provisions for linkage between secondary and postsecondary institutions were reported as the criterion least implemented in Iowa at the start of 1992. Three-fourths of the programs reported for colleges and almost as many of those reported for districts rarely had articulation agreements that resulted in advanced placement or standing. The tech-prep indicator had the highest percentage of all the 195 indicators used in the instrument reported as rarely incorporated. Tech-prep programs appear to be virtually nonexistent at colleges, but a little more frequent at districts. This is not necessarily inconsistent because one college could have programs with several districts.

A majority or more of the programs at districts and colleges rarely have support services for the seven defined special populations to assist them in the transition to postsecondary programs. These seven groups are the ones designated in the legislation, and services directed to them are included as indicators for several of the 12 main criteria. The most consistent results in this needs assessment are that services specifically for separate populations are rarely offered in 50 percent or more of the programs at both secondary and postsecondary institutions. The designated population which consistently has the highest percentage that rarely receives targeted services is limited English proficient, reflecting the low numbers from this population in most geographic areas of Iowa.

Results from the Qualitative Needs Assessment

The first needs assessment addressed the linkage question, but used the term "articulation:"

> The articulation model is certainly appealing. It is the strength of this logic, clearly, that has driven various attempts by the states to develop effectively articulated programs over the past quarter of a century. Yet, no state has developed a truly well-defined, consistent approach to articulation that compares to the promise of the model. There are a variety of reasons that have been cited for this relative failure, including a lack of resources, other priority educational issues, matters of "turf," etc. Regardless of the reason, states continue to make attempts to realize the model more fully, encouraged in part by federal law, the Perkins Act in particular, but genuinely due to the desirability and economy of the approach.
>
> Iowa is certainly no exception to the norm. Articulated programs, particularly in vocational-technical education, have been under consideration for some time. There are, in fact, some effective programs in certain areas across the state. However, the performance of state-funded institutions in this regard has been inconsistent at best. While some efforts have been made, these could be considered the exceptions that demonstrate the rule, because they are relatively rare. The state has simply not made the progress in program articulation that it had hoped.
>
> The lack of apparent success of articulation in Iowa is perhaps ironic, as conditions in Iowa may be among the most favorable for this approach to effectively develop. Unlike some other states, the K-12 and community college system is housed in the same state agency, vocational-technical education at both the high schools and community college level are located in the same administrative division. Indeed, the several community colleges in Iowa had their origins in secondary school programs themselves. Further, vocational-technical education has a long and respected history in the state, and quality education in general is, by all measures, a point of pride for Iowa's citizens. Finally, not only have Iowa's efforts been encouraged by federal mandates, they have also been driven by state law, most recently SF 449. Clearly, Iowa's educational and political leaders believe that effective articulation is a good idea, one that has not yet been sufficiently productive. (Lewis, et al. 1991, p.16)

The report of the first assessment identifies several barriers to increased articulation and presents some suggestions for encouraging increased articulation. The report also refers to the topic in a separate section, Coordination and Cooperation:

Whatever form the regional planning process takes, there will be an increasing need for this function to be performed. As has been noted at various points in this report, SF 449 will require increased cooperation among local district and between these districts and the community colleges. Regional leadership can assist this process by assessing the needs of employers and present and future workers and by bringing parties together to offer shared programs to meet these needs in the most efficient way. (Lewis et al., p.25)

Student Work Skill Attainment (Criterion III), Job Placement Services (Criterion V), and Needs of the Workforce ((Criterion XI) clustered closely in the rankings as among the criteria rarely incorporated in vocational programs. Seven out of ten programs at the secondary level and over eight out of ten programs at the postsecondary level rarely incorporate state validated competency lists. The results are a little better for locally validated competency lists.

III. Student Work Skill Attainment

	Secondary%	Postsecondary%
A. Vocational instructors use the following to document student job skill attainment:		
1) state validated competency list	71[a]	84
2) locally validated competency list	64	57
4) other (specify):	62	56

[a]Percentage of programs where this indicator is incorporated 25% of time or less.

The provision of job placement services was one of the criteria where there was a major difference between secondary and postsecondary institutions. Programs at the postsecondary level were far more likely to assist students to find jobs and to share information from follow-up studies. Annual follow-up studies, however, were rare for most programs, especially at the secondary level. Job placement services are rarely targeted to specific special populations in a majority or more of programs at both the secondary and postsecondary levels.

Results from the Qualitative Needs Assessment

The results from the qualitative needs assessment regarding student skill attainment and job placement are consistent with the findings of the quantitative study:

V. Ability of the Vocational Program to Provide Job Placement Service(s)

	Secondary%	Postsecondary%
B. Students are referred for job interviews and provided assistance in finding jobs after graduation.	66[a]	14
C. Employer surveys of former students' performance are conducted on an annual basis.	85	64
D. Information from student and employer follow-up studies is shared with appropriate audiences.	78	32
E. Counseling, instructional services, and job placement services are provided to special populations listed below to facilitate their transition from school to further schooling or post-school employment.		
1) disadvantaged (does not include individuals with learning disabilities)		
a. academically disadvantaged (includes potential dropouts and dropouts)	50	54
b. economically disadvantaged (includes foster children and JTPA)	52	50
c. limited English proficient (including migrant	71	72
2) disabled (includes IEP, IVP, and vocational rehabilitation students, etc.)	54	47
3) non-traditional (gender)	57	66
4) displaced homemakers, single/teen parents, and single pregnant women	60	62
5) offender	64	80
F. Placement data are collected annually to determine the percentage of students who obtain jobs in the occupational area or related field for which they are prepared.	79	11

[a]Percentage of programs where this indicator is incorporated 25% of time or less.

Job placement is not a major concern at the secondary level. Enrollments drive what classes are offered, not the job placement of the students who are graduated from these programs. Among the schools we visited, for example, we were told of two attempts to offer training in nursing to respond to local demand. Both of these were not continued because insufficient students enrolled. Part of this lack of interest, it was explained, is because students can get similar training from nursing homes and be paid while learning.

The most recent data on skill attainment and job placements are from follow-up surveys of students who completed or left programs during the 1984-85 school year (Iowa Department of Education 1987a, 1987b). Statewide samples of both secondary and postsecondary students were surveyed one year after leaving school. Sample of employers of secondary and postsecondary completers were drawn from those respondents who reported the names and addresses of their current employers, and these were surveyed also.

The employers who returned mail questionnaires rated the skill attainment of both secondary and postsecondary students quite highly. On most of the scales, 75 to 85 percent of the employers chose the two top ratings, about 10 to 15 percent chose the neutral point, and very few chose the two lowest ratings. A recent survey of employers found high levels of satisfaction with the adult training and retraining offered by community colleges (Iowa Department of Education 1991).

About half of the secondary students who were employed were in jobs they described as related to their training, about 90 percent of postsecondary students were. About 40 percent of the secondary students were continuing their education at the postsecondary level.

There is not at present any statewide system to measure student skill attainment. The development of the competency lists and the certification of skill attainment for articulation with postsecondary institutions are initial steps toward such a system. Considerable work will be necessary, however, to satisfy the requirements for performance standards set forth in the new Perkins amendments (Sec. 115). (Lewis et al., pp.14-15)

The indicators for Criterion XI are again weighted by the seven special populations. As is the case for several of the other criteria, postsecondary programs were more frequently reported as rarely incorporate these indicators than were secondary programs. A majority of programs at the secondary and postsecondary rarely provide field experience, on-the-job training, or clinical experience.

XI. Vocational Programs Meeting the Needs of the Work Force

	Secondary%	Postsecondary%
B. Vocational advisory committees review the program for relevancy including:		
1) instructional content based on competencies	55[a]	22
C. Procedures are in effect that provide special populations below and their family members direct input into the development of vocational education programs.		
1) disadvantaged (does not include individuals with learning disabilities)		
a. academically disadvantaged (includes potential dropouts and dropouts)	70	91
b. Economically disadvantaged (includes foster children and JTPA)	71	91
c. limited English proficient (including migrant)	79	93
2) disabled (includes IEP, IVP, and vocational rehabilitation students, etc.)	72	91
3) non-traditional (gender)	72	91
4) displaced homemakers, single/teen parents, and single pregnant women	75	93
5) offender	78	96
D. In addition to classroom instruction, vocational education programs include the following:		
1) field experience	56	52
3) on-the-job training	72	56
4) clinical experience	80	71

[a]Percentage of programs where this indicator is incorporated 25% of time or less.

X. Relevance of Programs to the Workplace/Occupations for Which Students Are to be Trained and Extent to Which Such Programs Reflect a Realistic Assessment of Current and Future Labor Market Needs (Including Needs in Areas of Emerging Technologies)

		Secondary%	Postsecondary%
A.	The following sources of information are used to determine vocational program offerings:		
2)	Job Service of Iowa	65[a]	32
4)	national labor market information	58	27
5)	State Occupational Information Coordinating Committee (SOICC) data	76	36
7)	program placement and follow-up	59	8
9)	chamber of commerce input	79	68
10)	want ad counts	70	65

[a]Percentage of programs where this indicator is incorporated 25% of time or less.

Criterion X did not cluster quite as closely to the preceding three, but is obviously critical to meeting the needs of the workplace. Colleges were much more likely to incorporate a variety of information sources to determine program offerings than were school districts.

Results from the Qualitative Needs Assessment

The first needs assessment had the following findings on relevancy of programs to the workplace:

> Without going into a lot of specifics, it is fair to say that the program offerings are generally in line with the employment needs of the state at both secondary and postsecondary level. The secondary schools we visited primarily offer agriculture, business and office, home economics, and industrial technology. The thinking is that these courses provide general entry level skills that are applicable in a number of occupations and often lead to further study at one of the community colleges. At the community colleges visited, a wide variety of programs in many vocational and technical fields were in evidence.
>
> We were told that several processes were being used to help ensure program relevancy. Spoken of most often was the use of advisory councils to advise the school or college

administration on overall program needs and offerings, and the use of occupational advisory committees to advise the teachers regarding specific courses or service areas. We were also told that the teachers and administrators utilize informal feedback received from parents and employers in many cases. Another procedure for keeping programs relevant involves the use of cooperative education work experiences and supervised clinical experiences in hospitals and nursing homes. Some vocational teachers reported the establishment of partnerships and other linkages with local businesses. The conduct of student and employer follow-up surveys was reported, however, by only a few schools. The state conducts a program review every five years.

Some of the outcomes of efforts to offer programs that are relevant to the workplace included the following:

1. One community college reported phasing out a dental assisting program because of a lack of employment opportunities and student interest.

2. It was reported that most agriculture programs have moved from an emphasis on production agriculture to include agriculture related areas.

3. The advisory committee members we interviewed were very positive about the qualifications of the vocational program graduates.

4. Nearly 90 percent of the 500 companies responding to a survey said that adult training courses through the community colleges had met the needs of their organization (Iowa Department of Education 1991).

5. Nearly 96 percent of the 500 companies responding said they would recommend community college courses to other businesses and industries. (Lewis et al., pp.5-6)

The first report then discusses five need areas identified with regard to technical updating of teachers, local review of state competencies, limited offerings at small rural schools, involvement of business and industry, and serving the majority of students who do not enter postsecondary education.

Sequencing (Criterion II) emerged as a priority criterion primarily because vocational programs rarely require academic courses or skills as prerequisites, particularly at the secondary level. In most programs, students are rarely given pre and post test to determine gains, particularly at the postsecondary level.

Only one of the criteria indicators related to competency-based instruction--entrepreneurial skills--met the definition of high need. All of the other indicators were reported as being incorporated sometimes or usually. School districts were more likely to report they usually incorporated these indicators than were postsecondary institutions.

II. Sequencing of Courses Leading to the Attainment of Both Academic and Vocational Competencies

		Secondary%	Postsecondary%
B.	Vocational programs require prerequisites from:		
	1) academic course(s)	88[a]	57
	3) academic skills(s) (e.g., GPA, reading level, math level, etc.)	83	52
C.	Vocational courses taught by competency-based instruction include the following areas:		
	5) entrepreneurial skills	47	71
D.	Students are given pre and post tests to determine their gains.		
	1) academic	63	85
	2) vocational	47	73

[a]Percentage of programs where this indicator is incorporated 25% of time or less.

Results from the Qualitative Needs Assessment

During the first needs assessment, the comments we received mainly concerned the competency lists being developed by the Department of Education:

We received a wide range of responses to the competency lists, but there was agreement that there should be lists. Many teachers and administrators reported general satisfaction with the competency identification process used and the products that resulted. Some specific lists were felt to be inadequate while others were believed to be too demanding. Several persons reported that inadequate time was allowed for the local advisory committees to review and respond to the surveys. The visiting team felt the survey forms could have been better formatted so as to facilitate responses and their tabulation. The formatting and time factors could have contributed to the reported poor rate of response received from the postsecondary level. Some administrators reported the need to halt local curriculum revision efforts which were already underway before the state got involved. Some teachers reported the lists as being very close to what they were already teaching.

A number of concerns or needs were detected as we talked to the teachers, administrators, and advisory committee members about the competencies. The major needs are as follows:

1. Concern was expressed by administrators that the competencies identified are really minimal, and that minimums often become the maximums. The visiting team feels it must be made clear that the local schools and community colleges are expected to add to the minimum competencies, others that are more advanced and/or relevant to the labor market area being served. Vocational teachers and administrators should be encouraged to involve local expert workers in this process after the state provides guidelines and training. It was repeated several times that competency development at the state level violates the strong sense of local control valued by most educators. This concern can probably be overcome easily if the local educators/advisory councils are permitted to do some local modification of the lists.

2. Considerable staff development is needed to help teachers and administrators understand what competency-education is and how it can be effectively implemented (many think it is individualized instruction). Teachers and administrators were almost unanimous in their expression of need for staff development help as they seek to implement the competencies in accordance with recommended strategies. The lists and program development guides alone will not suffice, teachers and administrators need training in how to successfully manage CBE instructional programs.

3. Program Development Guides for each vocational service area need to be carefully and comprehensively developed this year. State staff are already planning for this and have established a tentative table of contents for the guides. It will be important to have both secondary and postsecondary instructors, administrators, and guidance personnel serving on the development teams.

4. Several teachers and administrators said they wanted help with the selection and/or development of suitable curriculum and instructional materials which address the identified competencies. Therefore, the visiting team strongly recommends that one part of the Program Development Guides give special attention to identifying available high quality instructional materials that address as many of the competencies as possible. This could help the teachers avoid "recreating the wheel" and spending time (which most do not have) developing CBE instructional materials.

5. Several persons interviewed indicated that much work is needed to improve upon the competency assessment process--that it is too subjective and paper-oriented. Teachers felt assistance was needed with more objectively assessing student competency attainment in both the academic and vocational skill areas. As a result of the concerns raised, the state should probably include in either the Program Development Guides or separate documents, information and recommended procedures (with examples) for assessing student competency attainment in both academic and vocational skills. (Lewis et al., pp. 9-11)

I. Integration of Academic and Vocational Education	Secondary%	Postsecondary%
B. The following applied subjects are integrated into vocational education programs		
4) applied biology and chemistry (academic/vocational)	65[a]	50
E. Vocational instructors have received inservice training on methods of integrating academic competencies into vocational classes	59	80
F. Vocational instructors team with academic instructors to teach related academic competencies in vocational courses	80	84

[a]Percentage of programs where this indicator is incorporated 25% of time or less.

Most of the indicators related to integration of academic and vocational educators were reported as being incorporated in vocational programs usually or sometimes. The exceptions were for integration of applied biology and chemistry, inservice training on methods for integration, and team teaching. As with sequencing, secondary programs were more likely to report that they usually incorporated the integration indicators than were postsecondary programs.

Results from the Qualitative Needs Assessment

The qualitative needs assessment saw integration of academic and vocational eduction as less fully implemented than the quantitative assessment implies:

> Overall, those giving input at all levels recognize that there is significant work to be done to meaningfully implement the integration concept. It is clear that this is seen primarily as an issue for secondary education, although with the assistance of the AEA's and community colleges. The Carl Perkins legislative requirements do pertain to postsecondary as well as secondary education. However, fewer experiences are available for guideposts. It is suggested that the state department needs to act as a catalyst for heightened awareness and dialogue at this level, preparatory to pilot projects to develop an information/experience base.

At the secondary level, the first and foremost need is for a comprehensive plan to be developed at the state level for the integration effort. The state department has coordinated the identification of the academic competencies to be addressed, and educators in Iowa are clearly looking to the state department to provide leadership for the next steps. Since one of the next steps related to the vocational competencies is slated to be development of program guides, it is important that each of these guides include detailed information about how to incorporate (integrate) the academic competencies into the program.

The single greatest obstacle to continued progress in using integration strategies, and possibly other strategies as well, is widespread lack of certainty that academic credit can/should be granted for such courses and that this credit will be fully acceptable for purposes of admission to Regents institutions. A related issue is the nature of the teacher's certification if academic credit is to be awarded. The decisions made on these issues have implications for the power of these courses to attract numbers of students but also a broad range of students. Rather than allow these courses to have diluted status, the goal should be to use them as a proving ground for the statement made at one public meeting that "Vocational Education is part of a world-class education." A clear need exists to involve interdisciplinary task forces with strong representation of all groups whose concurrence is necessary to settle these issues so as to gain students credit as earned without sacrificing academic rigor.

An additional priority need related to integration is for staff inservice, and this need was expressed repeatedly at all levels. If the program guides are sufficiently comprehensive, these can provide a resource on which to base inservice. Many vocational teachers feel more adequate applying academic skills than teaching them explicitly (and vice versa for academic teachers). They need help learning the methods and resources that can be used. Further, inservice should include such topics as cooperative learning and individualization based on learning styles. Information should be provided about the counselor's role and the administrator's role as well as that of teachers. (Lewis et al., pp. 13-14)

VIII.	Ability of the Eligible Recipients to Meet the Needs of Special Populations With Respect to Vocational Education	Secondary%	Postsecondary%
A.	Information on vocational programs is provided to each of the following members of special populations and their parents prior to the 9th grade.		
	1) disadvantaged (does not include individuals with learning disabilities)		
	c. limited English proficient (including migrant)	59[a]	NA
	4) displaced homemakers, single/teen parents, and single pregnant women	53	NA
	5) offender	55	NA
B.	Each of the special populations listed below are recruited into all vocational programs		
	5) offender	44	82
C.	Each individual of the special populations listed below is assessed upon entry to determine her/his needs to be successful in vocational programs in the most integrated setting possible:		
	1) Disadvantaged (does not include individuals with learning disabilities)		
	a. academically disadvantaged (includes potential dropouts and dropouts)	58	80
	b. economically disadvantaged (includes foster children and JTPA)	62	87
	c. limited English proficient (including migrant)	70	90
	2) disabled (includes IEP, IVP, and vocational rehabilitation students, etc.)	61	80
	3) non-traditional (gender)	65	91
	4) displaced homemakers, single/teen parents, and single pregnant women	68	90
	5) offender	70	95
D.	Support services for special populations are accomplished by means of:		
	2) equipment modification	53	72
	3) environmental modification	52	70

VIII. Ability of the Eligible Recipients to Meet the Needs of Special Populations With Respect to Vocational Education (continued)

	Secondary%	Postsecondary%
E. The progress of each of the following special populations is monitored in all vocational programs.		
1) disadvantaged (does not include individuals with learning disabilities)		
c. limited English proficient (including migrant)	50[a]	73
4) displaced homemakers, single/teen parents, and single pregnant women	46	75
5) offender	48	80
G. Vocational instructional staff have received inservice training on methods of working with the following special populations.		
1) disadvantaged (does not include individuals with learning disabilities)		
a. academically disadvantaged (includes potential dropouts and dropouts)	52	80
b. Economically disadvantaged (includes foster children and JTPA)	62	93
c. limited English proficient (including migrant)	79	97
2) disabled (includes IEP, IVP, and vocational rehabilitation students, etc.)	62	77
3) non-traditional (gender)	62	86
4) displaced homemakers, single/teen parents, and single pregnant women	68	92
5) offender	76	97
H. Vocational instructional methods are responsive to the diverse learning styles of the following special populations:		
1) disadvantaged (does not include individuals with learning disabilities)		
c. limited English proficient (including migrant)	46	74

[a]Percentage of programs where this indicator is incorporated 25% of time or less.
NA=Not applicable

This criterion had by far the largest number of criteria indicators. It did not, however, assess many more practices than the other criteria. There are eight different practices involving special populations included in this criterion. After seven of these practices, the seven population groups specified in the Perkins legislation are listed. Respondents were asked to indicate the frequency with which each of the seven practices were incorporated into programs specifically for the seven population groups. Seven practices times seven groups yielded 49 criteria indicators. The one practice that did not list the seven groups referred to six types of support services provided for special populations.

The two practices that were rarely incorporated into a majority of programs were VIII C, assessing individuals upon entry into programs to determine their needs to be successful in the most integrated setting possible, and VIII G, inservice training for vocational staff to work with special populations.

The criteria indicators relating to the success of special populations, VIII F, recruitment into programs VIII B, and responsiveness to diverse learning styles, VIII H, were almost all reported as being incorporated sometimes or usually. Support services, other than equipment or environmental modification, were also reported to be incorporated in a majority of programs sometimes or usually.

Results from the Qualitative Needs Assessment

The first needs assessment discussed the topics under Criterion VIII in two sections: Service to Special Populations and Vocational Equity. Portions from each of these sections are quoted below.

> Special populations. Among those we talked to there is a real diversity of opinion about how well the needs of special populations are being met at all levels. The postsecondary system has received larger allocations than the secondary system in the past, and some people observed that the disparity is evident in the services provided. The postsecondary institutions claim that their needs are greater because they must provide extra services for special population students who have had negative life experiences since leaving high school. A considerable amount of concern was evidenced about how important it is to be able to maintain the services at least at their present level.
>
> Concern was also expressed by special educators that loss of the Perkins Act setasides for specific use for disadvantaged and handicapped students would have a negative impact on available services. There may, however, be some benefit from increased flexibility in the kinds of services that can be offered, given the change in the funding flow. It was also mentioned that the effort spent on application and funds administration now needs to be spent on direct technical assistance.
>
> Staff development surfaced repeatedly at all levels as an area of great need, with the comment that it should be focused on educators other than special education specialists who are already knowledgeable in this area, because the vast majority of other educators have had no formal professional preparation for dealing with special population students. In fact, at the postsecondary level no special needs certification is required for the special needs coordinator

role, an issue that should be examined. Further, because teachers are faced with a large range of students (increased by mainstreaming), they need to have strategies for individualization in their repertoire.

It would be desirable for the guide on special needs programming currently under development at the state department to be completed and used as a resource for staff development. Because it seems that access and assessment are relatively strong, this guide should stress procedures for individualized planning and follow-through and the need for teamwork between secondary and postsecondary systems and among vocational teachers, nonvocational teachers, guidance counselors, and special education staff in the delivery of a coherent sequence of services.

A related need is for curricular adaptations for special needs students, including LEP students. Funds to adapt physical facilities were identified as a future need.

Two groups were most often mentioned as having unmet needs relatively larger than other special populations, namely the mild to moderately handicapped and those who are identified as at-risk or dropout-prone. Both of these groups tend to be over-represented in vocational programs. If any point of consensus could be cited, it would be that vocational programs are an effective tool for dropout prevention and for reaching the at-risk population effectively. In the schools we visited, estimates of the percentage of students considered disadvantaged ranged from approximately 25-75%. An additional point is that this population needs to be stretched to meet higher academic standards through quality educational programming.

In addition, these programs are seen as a way to increase the self-esteem of disadvantaged students and give them skills for independent employment, most often directly after their secondary education. We visited an alternative school (Metro High School in Cedar Rapids) where it was clear that all these benefits were fully exploited on behalf of the students, all of whom were recruited to the school because they were seriously at risk.

An improved data collection system was one of the needs cited in the Postsecondary Handicapped Education Study (1990), specifically to include the number of students with handicaps who enter schools, complete or drop out of programs, and who are placed in employment or other training. Iowa's previous statewide follow-up studies of special education graduates and dropouts have pointed out information helpful for planning improvements in programs and also in the data needed.

Finally, concern has been expressed over the use of Pell Grants as the qualifier for special needs funding, given that they reflect economic but not other types of disadvantagement. Perhaps a need exists to explore how the funding can be implemented so as to ensure the incorporation all types of need in its designated uses. (Lewis et al., pp.20-22).

Vocational equity. The study team uncovered little in the way of explicit attempts at discriminatory patterns of programming or admissions, either at the secondary or post-secondary levels. However, upon visits to the classrooms, we saw few women in traditionally male programs or men in traditionally female programs. This in itself is no proof of discriminatory attitudes by the school, only being suggestive that the equity effort in the state

has a considerable way to go toward success. Of course, some places appeared to be better positioned on this issue than others, even in relatively rural areas. Asked about the problem by the study team, four female students at one small high school reported very good gender mixes in their high school.

In terms of addressing this issue, setaside funds for sex equity and displaced homemakers in the new Perkins legislation is one of the few remaining population specific goals. The distribution of these funds in Iowa has tended to encourage competitive proposals from local schools and community colleges. The best proposals tend to win the funds. The difficulty here is that those schools best equipped and staffed to propose winning programs will be those which already have the expertise with which to create them. This may bias the distribution of those funds to institutions which may not be in quite as great need compared to those schools which do not have such staff support but do in fact require assistance.

The problem is perhaps at its most crucial with respect to displaced homemakers, for whom the current availability of job opportunities may be at its most urgent. While most areas have programs available, they are most likely to be of a career awareness or occupational exploration variety. This is not likely to address the areas of most urgent need for these individuals. Further, while these persons certainly require those services typically found in most sex equity programs, they also tend to have special requirements for support in such areas as tuition assistance, transportation, funds for classroom equipment and tools, and, perhaps most critically, child care. At the community college level, all campuses should have assigned sex equity professionals who could obtain and coordinate these services for displaced homemakers, providing child care if possible.

Finally, the educational system in Iowa could be more aggressive with respect to all aspects of the employment training process. Employers, as well as educators, tend to have gender stereotypic views. Clearly, more could be done to assist them in developing new attitudes which may be among the most important contributions to sex equity that educators could make. (Lewis et al., pp. 22-23)

IV. Vocational and Guidance Counseling

	Secondary%	Postsecondary%
A. Career planning to assist students to be successful in their vocational program is provided by:		
3) career information delivery system	50[a]	67
C. Vocational guidance and counseling services responsive to the needs of special populations cited below are provided/ available by professionally trained counselors:		
1) disadvantaged (does not include individuals with learning disabilities		
c. limited English proficient (including migrant)	61	76
4) displaced homemakers, single/teen parents, and single pregnant women	48	54
5) offender	54	84

[a]Percentage of programs where this indicator is incorporated 25% of time or less.

Three of the four criteria indicators related to counseling that were reported as rarely incorporated in a majority of programs referred to special populations. The other indicator rarely incorporated involved the career information delivery system. This is somewhat surprising given that Iowa has been a national leader in the development of such systems. Many other states have adopted the general model developed in Iowa.

The qualitative needs assessment did not directly address vocational and guidance counseling.

VII. Instruction and Experience, to the Extent Practicable, In All Aspects of the Industry the Students are Preparing to Enter

	Secondary%	Postsecondary%
B. Within the vocational programs, students are assessed on their understanding of each of the following aspects of industry (for which students are preparing to enter);		
7) community issues	51[a]	74
8) health and ecology	50	66

[a]Percentage of programs where this indicator is incorporated 25% of time or less.

Only two of the 18 indicators relating to Criterion VII were reported as rarely incorporated in a majority of programs. These two indicators involved the assessment of students with regard to their understanding of the community issues and health and ecology aspects of the industry they are preparing to enter.

This criterion was not specifically addressed in the qualitative needs assessment. There was at the time of that study, January 1991, uncertainty about the Congressional intent of this criterion and, it is our judgment, that much of this uncertainty remains. As defined by the nine separate aspects listed in the quantitative assessment, these aspects are being incorporated in a majority of programs.

IX. Raising the Quality of Vocational Education Programs in Schools with High Concentrations of Low Income and Low Achieving Students

	Secondary%	Postsecondary%
C. Programs which have high concentrations of low income and low achieving students have a process in place for assessing program quality and a plan for program improvement.	48[a]	62

[a]Percentage of programs where this indicator is incorporated 25% of time or less.

This criterion had only four indicators, and only one was reported as rarely incorporated in a majority of programs. That involved having a process in place for assessing and improving programs. The school districts reported that a majority of their programs incorporated such a process sometimes or usually, but the colleges reported that almost two-thirds of their programs did not.

This criterion was not specifically addressed in the qualitative needs assessment. Some of the findings reported in the section on special populations are obviously relevant.

XII. Basic and Higher Order Current and Future Workplace Competencies That Will Reflect the Hiring Needs of Employers

	Secondary%	Postsecondary%
A. The following basic and higher order current and future workplace competencies have been incorporated into vocational and technology curricula through competency specific objectives.		
8) negotiation skills	45[a]	77
B. Vocational instructors assess students' ability to perform higher-order current and future workplace competencies in the areas listed below:		
8) negotiation skills	47	80

[a]Percentage of programs where this indicator is incorporated 25% of time or less.

There are 22 indicators for Criterion XII. They refer to 11 types of skills and respondents were asked to report how often these were incorporated into curriculum and how often students were assessed on these skills. Only one of the 11, negotiation skills, was reported as rarely incorporated in programs in a majority of programs. Colleges were considerably more likely than school districts to report negotiation skills were rarely incorporated in curriculum and students were rarely assessed on these skills.

The qualitative needs assessment did not specifically address Criterion XII.

DISCUSSION

The indicators that have been presented are those that were defined as high need in both the secondary and postsecondary instruments. There were 40 additional indicators for postsecondary institutions that were reported as rarely incorporated in a majority of programs. All but four of these were from three criteria: Criterion VII, 10 indicators; Criterion VIII, 14 indicators; and Criterion XII, 12 indicators.

Community colleges reported themselves as less likely than schools districts to incorporate in their programs--

- instruction and assessment on all aspects of industries students are preparing to enter,
- practices targeted to specific special populations, and
- instruction and assessment on basic and higher order current and future workplace competencies.

We are unaware of any information from the qualitative or quantitative needs assessments that suggests why the community colleges reported themselves as less likely to incorporate the indicators related to these three criteria.

In general, we feel there is a high degree of agreement between the qualitative and quantitative needs assessments. Certainly the highest priority need, Criterion VI, Linkage between Secondary and Postsecondary Institutions, is in agreement with these statements from the Policy Implications section of the qualitative report:

> . . . it was apparent from the information we reviewed and the site visits we conducted that it would be impossible for every school district in Iowa to meet the requirements of Senate File 449 on their own, no matter how much financial assistance they received. Many districts simply do not have enough students interested in vocational courses to make it feasible to offer a sequence of three integrated courses in four different vocational areas. As the programs are improved and increased career guidance is offered, more students may be attracted into vocational courses. Even if interest increases, however, many districts will still have to cooperate with other districts or the community colleges to satisfy the standards in the new legislation.
>
> - Mechanisms should be included in the [state] plan that provide incentives for cooperation among local education districts and between these districts and the community colleges that serve their merged areas in the planning and delivery of vocational programs. (Lewis et al., p.27)

Inservice for instructional staff was only included as criteria indicators on integration of academic and vocational education and service to special populations. In both these cases substantial majorities of school districts and colleges reported these were rarely incorporated in their programs. These results confirm another of the major policy implications from the qualitative assessment:

- There is a widespread need among vocational teachers to improve their knowledge and skills in the methods of competency-based education and in techniques to integrate basic academic skills into vocational instruction. (Lewis et al., p.27)

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